Applicant : Doron Shaked et al.   Attorney's Docket No.: 10991144-5
Serial No. : 10/692,610   Amendment dated July 12, 2004
Filed   : October 24, 2003   Reply to Office action dated Apr. 21, 2004
Page   : 4 of 10

Amendments to the Claims

The following Listing of Claims replaces all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1-14 (canceled)

Claim 15 (currently amended): A method for generating a visually significant barcode comprising:

receiving an M × N pixel image, wherein M and N are positive integers;

receiving a message having a plurality of symbols fields;

partitioning at least a portion of an the M×N pixel image into a plurality of K×K image matrices, wherein K is a positive integer; and

converting at least one of the K×K image matrices to a respective K×K barcode matrix corresponding to a symbol in the message and contained in one of multiple predetermined barcode matrix sets selected based on pixel values in the K×K image matrix being converted, wherein each barcode matrix set includes a respective barcode matrix for each possible symbol in the message, and barcode matrices in different sets encoding a common message symbol have different respective spatial patterns of dots selected from a set of different color dots the K×K image matrices to K×K barcode matrices by utilizing one of a predetermined set of L distinct maps; wherein the selection of the particular map is based on a corresponding field of the message.

Claim 16 (original): The method as in claim 15 wherein the pixel image is one of a black and white image, a color image, and a gray-level image.

Claim 17 (original): The method as in claim 15 wherein the barcode matrices are multi -level barcode matrices that includes one of gray level barcode matrices and color barcode matrices.

Claim 18 (original): The method as in claim 15 further comprising:

Applicant : Doron Shaked et al.
Serial No. : 10/692,610
Filed   : October 24, 2003
Page   : 5 of 10

Attorney's Docket No.: 10991144-5
Amendment dated July 12, 2004
Reply to Office action dated Apr. 21, 2004

defining an image area for predetermined fiducial marks.

Claim 19 (currently amended): The method as in claim 15 wherein the each image matrix is converted to a respective barcode matrix using one of a predetermined set of L distinct maps includes a predetermined set of halftoning algorithms selected from that can be one of cluster dithering, disperse dithering, and error diffusion.

Claim 20 (original): A method for decoding a visually significant barcode comprising: receiving the barcode image;

partitioning the barcode image into a plurality of sub-images;

comparing each sub-image with a set of L possible barcode matrices; and

decoding a message based on a match estimation of each sub-image to each one of the L possible barcode matrices in a sequence of P symbols over {1, 2, ... L}.

Claim 21 (original): The method as in claim 20 further comprising: receiving an image having a barcode image; and locating the barcode image in the received image.

Claim 22 (original): The method as in claim 20 further comprising:

detecting at least one fiducial mark in the barcode image; and using the fiducial mark to correct distortions in the barcode image.

Claim 23 (new): The method of claim 15, wherein converting the image matrices comprises segmenting the image matrices into multiple groups based on pixel values in the image matrices.

Claim 24 (new): The method of claim 23, wherein image matrices are segmented into multiple halftone groups based on gray level values in the image matrices, and the segmented image matrices are encoded with respective corresponding sets of two-dimensional, coded halftone patterns.

Applicant : Doron Shaked et al.
Serial No. : 10/692,610
Filed : October 24, 2003
Page : 6 of 10

Attorney's Docket No.: 10991144-5
Amendment dated July 12, 2004
Reply to Office action dated Apr. 21, 2004

Claim 25 (new): The method of claim 15, wherein the K × K image matrices are converted to K × K barcode matrices in accordance with a mapping between the barcode matrices and the symbols in the message.

Claim 26 (new): The method of claim 25, wherein the mapping between the barcode matrices and the message corresponds to an error correction code linking code pattern matrices to symbols of the message.

Claim 27 (new): The method of claim 15, further comprising converting areas of the image to fiducial mark areas of the visually significant barcode.

Claim 28 (new): The method of claim 27, wherein corner areas of the base image are converted to fiducial mark areas of the visually significant bar code.

Claim 29 (new): The method of claim 27, wherein each fiducial mark area comprises a region of bright pixels isolating a region of dark pixels from code pattern areas of the visually significant barcode.

Claim 30 (new): The method of claim 15, wherein the received message corresponds to a compressed version of an original message.

Claim 31 (new): The method of claim 15, wherein each barcode matrix comprises a pattern of bright and dark pixels.

Claim 32 (new): The method of claim 15, wherein each barcode matrix comprises a multi-tone pattern of dots.

Claim 33 (new): The method of claim 32, wherein each barcode matrix comprises a two-tone pattern of bright dots and dark dots.

Claim 34 (new): The method of claim 32, wherein each dot is a square pixel area.